



Patent
KRI955/971071D
Customer No. 24,118

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT: DENNIS KRIVOHLAVEK)
Serial No.: 09/872,034)
Filed: JUNE 1, 2001)
For: AMBIENT TEMPERATURE ANHYDROUS)
LIQUID CROSS-LINKING AGENT)
Art Unit: 1713)
Examiner: BERNARD LIPMAN)

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DEC 27 2005

APPELLANT'S APPEAL BRIEF

Mail Stop - Board of Patent
Appeals and Interferences
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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OFFICE OF PETITIONS

Dear Sir:

Applicant, Dennis Krivohlavek, files this appeal brief pursuant to 37 CFR §41.37 in support of his appeal to the Board of Patent Appeals and Interferences.

37 CFR §41.37(c)(1)(i)
REAL PARTY IN INTEREST

The real party in interest is the applicant herein, Dennis Krivohlavek.

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on December 12, 2005.

Dennis Krivohlavek

37 CFR §41.37(c)(1)(ii)
RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

37 CFR §41.37(c)(1)(iii)
STATUS OF THE CLAIMS

Claims 1 through 5, 7, 8, 12 through 15, 17 through 26, and 49 through 51 are pending in the present patent application. Each claim has been rejected and each claim, as amended, is appealed herein.

Claim 1 is an independent claim relating to a cross-linking compound with Claims 2, 3, 4, 5, 7, 8 and 50 dependent thereon.

Claim 12 is an independent claim relating to a cross-linking compound with Claims 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 and 51 dependent thereon.

Claim 49 is an independent claim relating to a cross-linking compound.

37 CFR §41.37(c)(1)(iv)
STATUS OF AMENDMENTS

Following a restriction requirement and Section 112 issues raised in an Office Action dated May 28, 2002, Applicant amended his claims in an Amendment dated September 23, 2002. Thereafter, by Office Action dated September 24, 2003, the claims were rejected under §102 and §103 under Hagenbach (U.S. Patent No. 4,567,222). Following Applicant's amendment dated December 23, 2003, the claims were rejected by Office Action dated April 16, 2004.

A final rejection Office Action was issued on June 16, 2005. There are no unentered amendments. The present appeal is taken from the June 16, 2005 Office Action.

37 CFR §41.37(c)(1)(v)
SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 defines the invention as a compound and is an independent claim. Claims 2, 3, 4, 5, 7, 8 and 50 dependent on Claim 1 and do not stand or fall with Claim 1.

Claim 12 defines the invention as a compound and is an independent claim. Claims 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 and 51 are each dependent on Claim 12 and do not stand or fall with Claim 1.

Claim 49 defines the invention as a compound and is an independent claim.

An explanation of the subject matter defined in each of the independent claims in the appeal referring to the specification follows:

Claim	Specification
<p>1. A cross-linking compound which comprises:</p> <p>(a) an anhydrous hydrocarbon compound liquid at ambient temperature;</p> <p>(b) having at least one di- or poly- Group VI-A element of the periodic table of elements; and</p> <p>(c) a natural or synthetic polymer liquid at ambient temperature having a molecular weight less than 25,000, wherein said anhydrous hydrocarbon compound, said Group VI-A element, and said polymer are dissolvable or digestible in asphalt to react under heat of from greater than 110°C to produce a cross-linked polymer modified asphalt.</p>	<p>pg. 9, lines 9-10; pg. 13, lines 13 - pg. 14, line 10</p> <p>pg. 9, lines 14-17; pg. 14, line 11 - pg. 15, line 5</p> <p>pg. 9, lines 10-11; pg. 12, lines 16 - pg. 13, line 12; pg. 15, lines 6-18; pg. 20, lines 17-19; pg. 23, line 15 - pg. 24, line 2</p>
<p>12. A cross-linking compound which comprises:</p> <p>(a) an anhydrous hydrocarbon compound liquid at ambient temperature;</p> <p>(b) molecules or chemical moieties having two or more Group VI-A elements of the periodic table of elements; and</p> <p>(c) a natural or synthetic polymer liquid at ambient temperature having a molecular weight less than 25,000, wherein said anhydrous hydrocarbon compound, said molecules or moieties, and said polymer are dissolvable or digestible in asphalt to react under heat of from greater than 110°C to produce a cross-linked polymer modified asphalt.</p>	<p>pg. 9, lines 9-10; pg. 13, line 13 - pg. 14, line 10</p> <p>pg. 9, lines 14-17; pg. 14, line 11 - pg. 15, line 5</p> <p>pg. 9, lines 10-11; pg. 12, lines 16 - pg. 13, line 12; pg. 15, lines 6-18; pg. 20, lines 17-19; pg. 23, line 15 - pg. 24, line 2</p>

49. A cross-linking compound which comprises:	
(a) an anhydrous hydrocarbon compound liquid at ambient temperature having elemental sulfur, oxygen or selenium therein, wherein said hydrocarbon compound is Di-tert-butyl polysulfide, Di-tert-dodecyl polysulfide, Di-tert-nonyl polysulfide or combinations thereof; and	pg. 9, lines 9-10; pg. 9, lines 14-17; pg. 13, line 13 - pg. 14, line 10 pg. 14, line 11 - pg. 15, line 5
(b) an ethylenic polymer liquid at ambient temperature having a molecular weight less than 25,000, wherein said polymer is a copolymer of butylene and butene, wherein said anhydrous compound having sulfur, oxygen, or selenium therein, and said polymer are dissolvable or digestible in asphalt to react under heat of from greater than 110°C to produce a cross-linked polymer modified asphalt.	pg. 9, lines 10-11; pg. 12, lines 16 - pg. 13, line 12; pg. 15, lines 6-18; pg. 20, lines 17-19; pg. 23, line 15 - pg. 24, line 2

37 CFR §41.37(c)(1)(vi)
GROUND OF REJECTION

The grounds of rejection to be reviewed on appeal are as follows:

Are Claims 1 through 5, 7, 8, 12 through 15, 17 through 26 and 49 through 51 unpatentable under 35 U.S.C. §102(b) as anticipated by Skillicorn (U.S. Patent No. 4,147,854) or, in the alternative, as obvious under 35 U.S.C. §103(a) over Skillicorn (U.S. Patent No. 4,147,854)?

37 CFR §41.37(c)(1)(vii)
ARGUMENT

The Examiner's rejection of the claims as anticipated or obvious over Skillicorn (U.S. Patent No. 4,147,854) is traversed. The Examiner takes the position that limitation (a) of the independent claims is disclosed in column 8 of Skillicorn, however, there is no disclosure of an anhydrous hydrocarbon compound liquid at ambient temperature along with the other limitations of the claims.

The Examiner also takes the position that limitation (b) of the independent claims is anticipated and disclosed in column 7, however, column 7 simply provides a list of curatives to cure to a solid rather than a particular type of anhydrous hydrocarbon compound liquid at ambient

temperature. Moreover, none of the curatives are used with the other limitations of the combination compound set forth as claimed.

The Examiner also takes the position that limitation (c) of the independent claims is disclosed or suggested in column 3 of Skillicorn.

Finally, the Examiner dismisses the limitation in each independent claim that the polymer is “dissolvable or digestible in asphalt to react under heat of from greater than 110°C to produce a cross-linked polymer modified asphalt.” The Examiner’s position that “the requirement of ‘dissolvable or digestible’ is merely a capability and is reasonably presumed present in the compositions taught by Skillicorn” is not a well taken rejection. Indeed, Skillicorn teaches away from the claimed limitation. Skillicorn in all instances requires a polymer containing vinyl nitriles which are known by those skilled in the art to be oil resistant and therefore not normally dissolvable or digestible in asphalt.

Skillicorn is directed to disclosure of a new polymer (see Claim 1 of Skillicorn) - a liquid vinylidene terminated polymer - but is otherwise dissimilar. Skillicorn’s new polymer is even in a different class as classified by the U.S. Patent Office. Specifically, Skillicorn does not disclose or teach a combination of (a) an anhydrous hydrocarbon compound liquid at ambient temperature, (b) a di- or poly- Group VI-A element, and (c) a polymer liquid at ambient temperature having a molecular weight less than 25,000, which are dissolved or digested in asphalt. Additionally, Skillicorn does not disclose heating to react under temperature of from greater than 110°C in order to produce a cross-linked polymer modified asphalt. All of Skillicorn’s examples are at room temperature or at most 105°C. Skillicorn does not teach or even suggest use of a cross-linking compound in asphalt as set forth in the claims of the present invention.

None of the Skillicorn compounds react under heat to produce a cross-linked polymer modified asphalt.

Skillicorn teaches away from the present invention for yet another reason. Skillicorn teaches and all of the examples support the goal of setting to a solid at room temperature. Such a goal and procedure would be undesirable for creating a cross-linked polymer modified asphalt.

In summary, Skillicorn does not anticipate the claims of the present invention nor are the claims of the present invention made obvious by Skillicorn.

37 CFR §41.37(c)(1)(viii)
CLAIMS APPENDIX

An appendix containing a copy of the claims is submitted herewith.

37 CFR §41.37(c)
EVIDENCE APPENDIX

In addition to the patent references cited by the Examiner, Applicant submitted photocopies of pages from the MPEP and from a text of introduction of polymer chemistry, a copy of which is attached hereto and made a part hereof.

37 CFR §41.37(c)(1)(x)
RELATED PROCEEDINGS APPENDIX

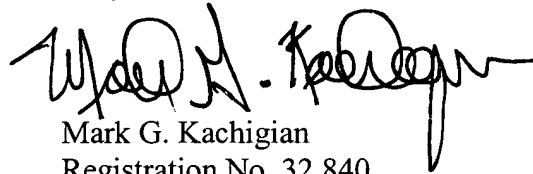
There are no related proceedings.

SUMMARY

For all the foregoing reasons, it is believed that the present rejections should be lifted and that the application should proceed to allowance.

Pursuant to 37 CFR §41.37(a)(2), the \$250 fee for filing the brief has been submitted. The Commissioner is hereby authorized to charge any additional fees which may be required by this paper to Deposit Account No. 08-1500. This brief is being transmitted in triplicate pursuant to the regulations.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'Mark G. Kachigian', with a stylized flourish at the end.

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December 12, 2005

CLAIMS APPENDIX

- 1 1. (Previously Presented) A cross-linking compound which comprises:
2 (a) an anhydrous hydrocarbon compound liquid at ambient temperature;
3 (b) having at least one di- or poly- Group VI-A element of the periodic table of
4 elements; and
5 (c) a natural or synthetic polymer liquid at ambient temperature having a
6 molecular weight less than 25,000, wherein said anhydrous hydrocarbon compound, said Group VI-
7 A element, and said polymer are dissolvable or digestible in asphalt to react under heat of from
8 greater than 110°C to produce a cross-linked polymer modified asphalt.
- 1 2. (Original) A cross-linking compound as set forth in Claim 1 wherein said Group VI-
2 A element is sulfur.
- 1 3. (Original) A cross-linking compound as set forth in Claim 1 wherein said polymer
2 is a multi-component polymer.
- 1 4. (Original) A cross-linking compound as set forth in Claim 1 wherein said polymer
2 is saturated.
- 1 5. (Original) A cross-linking compound as set forth in Claim 1 wherein said polymer
2 contains functional groups.

1 6. (Withdrawn) A cross-linking compound as set forth in Claim 1 wherein said polymer
2 is hydroxy terminated polybutadiene.

1 7. (Original) A cross-linking compound as set forth in Claim 1 wherein said polymer
2 contains two or more chemical moieties.

1 8. (Original) A cross-linking compound as set forth in Claim 7 wherein said polymer
2 is a copolymer of butylene and butene.

1 9. (Withdrawn) A cross-linking compound as set forth in Claim 1 including aldehyde,
2 phenol, phenol-aldehyde, melamine or epoxy resins.

1 10. (Withdrawn) A cross-linking compound as set forth in Claim 9 wherein said epoxy
2 resins contains glycidyl moieties.

1 11. (Canceled)

1 12. (Previously Presented) A cross-linking compound which comprises:

2 (a) an anhydrous hydrocarbon compound liquid at ambient temperature;

3 (b) molecules or chemical moieties having two or more Group VI-A elements of
4 the periodic table of elements; and

5 (c) a natural or synthetic polymer liquid at ambient temperature having a
6 molecular weight less than 25,000, wherein said anhydrous hydrocarbon compound, said molecules
7 or moieties, and said polymer are dissolvable or digestible in asphalt to react under heat of from
8 greater than 110°C to produce a cross-linked polymer modified asphalt.

1 13. (Original) A cross-linking compound as set forth in Claim 12 wherein said polymer
2 is a multi-component polymer.

1 14. (Original) A cross-linking compound as set forth in Claim 12 wherein said polymer
2 is saturated.

1 15. (Original) A cross-linking compound as set forth in Claim 12 wherein said polymer
2 contains functional groups.

1 16. (Withdrawn) A cross-linking compound as set forth in Claim 15 wherein said
2 polymer is hydroxy terminated polybutadiene.

1 17. (Original) A cross-linking compound as set forth in Claim 12 wherein said polymer
2 contains two or more chemical moieties.

1 18. (Original) A cross-linking compound as set forth in Claim 17 wherein said polymer
2 is a copolymer of butylene and butene.

1 19. (Original) A cross-linking compound as set forth in Claim 12 wherein said Group
2 VI-A elements of the periodic table of elements are in terminal positions on the molecules or
3 chemical moieties.

1 20. (Original) A cross-linking compound as set forth in Claim 19 wherein at least one
2 of said Group VI-A elements of the periodic table of elements is sulfur.

1 21. (Original) A cross-linking compound as set forth in Claim 20 wherein the molecules
2 or chemical moieties are mercaptans.

1 22. (Original) A cross-linking compound as set forth in Claim 12 wherein said Group
2 VI-A elements of the periodic table of elements are not in the terminal position of the molecules or
3 chemical moieties.

1 23. (Original) A cross-linking compound as set forth in Claim 22 wherein said Group
2 VI-A elements of the periodic table of elements are poly-element moieties within the molecules or
3 chemical moieties.

1 24. (Original) A cross-linking compound as set forth in Claim 23 wherein at least one
2 of said Group VI-A elements is sulfur.

1 25. (Original) A cross-linking compound as set forth in Claim 23 wherein the molecules
2 or chemical moieties are Di-tert-butyl polysulfide, Di-tert-dodecyl polysulfide, Di-tert-nonyl
3 polysulfide or combinations thereof.

1 26. (Original) A cross-linking compound as set forth in Claim 23 wherein the poly-
2 element moiety is poly-sulfide.

1 27. (Withdrawn) A cross-linking compound as set forth in Claim 23 including additional
2 cross-linking agents of aldehydes, phenols, phenol-aldehydes, melamine resins or epoxy resins.

1 28. (Withdrawn) A cross-linking compound as set forth in Claim 23 wherein said epoxy
2 resin contains glycidyl moieties.

1 29. (Withdrawn) A cross-linking compound as set forth in Claim 28 wherein the glycidyl
2 moiety is neodecanoic acid, oxiranylmethyl ester.

1 30. (Withdrawn) A cross-linking compound as set forth in Claim 1 including
2 vulcanization accelerators or co-reactant.

1 31. (Withdrawn) A cross-linking compound as set forth in Claim 30 wherein the
2 accelerator or co-reactant is Tetramethyl Thiuram Disulfide.

1 32. (Withdrawn) A cross-linking compound as set forth in Claim 30 wherein the
2 accelerator or co-reactant is Tetrabutylthiuram Disulfide.

1 33. (Withdrawn) A cross-linking compound as set forth in Claim 30 wherein the
2 accelerator or co-reactant is a room temperature accelerator or co-reactant.

1 34. (Withdrawn) A cross-linking compound as set forth in Claim 30 wherein the
2 accelerator or co-reactant is Dimethyl Cyclohexyl Ammonium Dibutyl Dithiocarbamate.

1 35. (Withdrawn) A cross-linking compound as set forth in Claim 1 including organic oils
2 or solvents.

Claims 36 through 38 (Canceled)

1 39. (Withdrawn) A cross-linking compound as set forth in Claim 35 wherein the organic
2 oils or solvents are derived from natural oils.

1 40. (Withdrawn) A cross-linking compound as set forth in Claim 39 wherein the natural
2 oils are of either animal or vegetable origin.

1 41. (Withdrawn) A cross-linking compound as set forth in Claim 39 wherein the oil is
2 of vegetable origin.

3 42. (Withdrawn) A cross-linking compound as set forth in Claim 35 wherein the organic
4 oils or solvents contain elements of Group V-A of the periodic table of elements.

1 43. (Withdrawn) A cross-linking compound as set forth in Claim 42 wherein the Group
2 V-A elements contained in said oils or solvents is either phosphorous or nitrogen or both.

1 44. (Withdrawn) A cross-linking compound as set forth in Claim 43 wherein said oils
2 or solvents containing both phosphorous and nitrogen is lecithin.

1 45. (Withdrawn) A cross-linking compound as set forth in Claim 1 which includes
2 chemical moieties capable of forming an oxidation-reduction reaction.

1 46. (Withdrawn) A cross-linking compound as set forth in Claim 45 wherein the
2 chemical moieties capable of forming a oxidation-reduction reaction are iron sulfate and iron
3 chloride.

Claims 47 and 48 (Canceled)

1 49. (Previously Presented) A cross-linking compound which comprises:
2 (a) an anhydrous hydrocarbon compound liquid at ambient temperature having
3 elemental sulfur, oxygen or selenium therein, wherein said hydrocarbon compound is Di-tert-butyl
4 polysulfide, Di-tert-dodecyl polysulfide, Di-tert-nonyl polysulfide or combinations thereof; and

5 (b) an ethylenic polymer liquid at ambient temperature having a molecular weight
6 less than 25,000, wherein said polymer is a copolymer of butylene and butene, wherein said
7 anhydrous compound having sulfur, oxygen, or selenium therein, and said polymer are dissolvable
8 or digestible in asphalt to react under heat of from greater than 110°C to produce a cross-linked
9 polymer modified asphalt.

1 50. (Original) A cross-linking compound as set forth in Claim 1 wherein said anhydrous
2 hydrocarbon compound is an organic process oil from crude or coal processing.

1 51. (Original) A cross-linking compound as set forth in Claim 12 wherein said
2 anhydrous hydrocarbon compound is an organic process oil from crude or coal processing.